IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Tarara et al. Application No: 09/886,296 Confirmation No: 6348 Filing Date: June 21, 2001 For: ENGINEERED PARTICLES AND METHODS OF USE	Group Art Unit: 1611 Examiner: Welter, Rachael E. Attorney Docket No: 53250-US-CNT[3] (NV.0054.10) January 22, 2010 San Francisco, California 94107

APPEAL BRIEF

VIA ELECTRONIC FILING

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Examiner:

In response to the Examiner's Final Rejection of June 22, 2009 and the Notice of Appeal filed on September 22, 2009, the Applicant of the above-referenced patent application (hereinafter Appellant) hereby appeals to the Board of Patent Appeals and Interferences. Appellant requests the reversal of the Final Rejection.

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By: Melanie Hitchcock
Melanie Hitchcock

Date: January 22, 2010

(1) *Real Party in Interest*

The real party in interest of the present application is Novartis AG (by way of assignment from Novartis Pharmaceuticals AG and from Nektar Therapeutics, which was formerly Inhale Therapeutic Systems, Inc.), having a place of business at Forum 1, Novartis Campus, CH-4056 Basel, Switzerland.

(2) *Related Appeals and Interferences*

Appellant, Appellant's legal representative, and assignee are aware of no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the present appeal.

(3) *Status of Claims*

Claims 57, 59-80 and 82-102 are presently pending in the case. Claims 57, 59-80 and 82-102 have been finally rejected. The rejection of each of claims 57, 59-80 and 82-102 is hereby appealed.

Claims 1-56, 58 and 81 have been cancelled.

(4) *Status of Amendments*

No amendments have been filed after the Final Office Action of June 22, 2010. Accordingly, all amendments submitted during prosecution have been entered.

(5) *Summary of the Claimed Subject Matter*

As recited in claim 57, an inhaleable powder composition comprises a plurality of particulate microstructures (page 11 line 15 through page 21 line 14). The particulate microstructures comprise a structural matrix comprising phospholipid and calcium (page 17 line 20, page 29 lines 19 and 20), wherein the particulate microstructures comprise greater than about 50% phospholipid (page 16 lines 5-6). The particulate microstructures further comprise an active agent (page 19 line 1 through page 21 line 4); a mean geometric diameter of 1-30 microns (page 32 lines 11-12); a mean aerodynamic diameter of less than 5 microns (page 38 lines 21-22); and a bulk density of less than about 0.5 g/cm^3 (page 38 line 15).

As recited in claim 80, a composition comprises a plurality of particulate microstructures (page 11 line 15 through page 21 line 14). The particulate microstructures comprise a structural matrix comprising phospholipid and calcium (page 17 line 20, page 29 lines 19 and 20), the phospholipid comprising a gel to liquid crystal transition temperature of greater than 40°C, wherein greater than about 50% of the particulate microstructures comprise phospholipid (page 16 lines 5-6). The particulate microstructures further comprise an active agent (page 19 line 1 through page 21 line 4); a mean geometric diameter of 1-30 microns (page 32 lines 11-12); a mean aerodynamic diameter of less than 5 microns (page 38 lines 21-22); and a bulk density of less than about 0.5 g/cm^3 (page 38 line 15).

(6) *Grounds of Rejection to be Reviewed on Appeal*

Appellant requests review of the Examiner's following grounds of rejection:

Claims 57, 59-80 and 82-102 have been rejected under 35 U.S.C. §§112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 57, 59-77, 80 and 82-100 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 5,855,913 to Hanes et al (hereinafter Hanes et al) in view of U.S. Patent 6,120,751 to Unger (hereinafter Unger) as evidenced by U.S. Patent 5,776,488 to Mori et al (hereinafter Mori et al).

Claims 78 and 101 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Hanes et al in view of Unger and as evidence by Mori et al, and further in view of U.S. Patent 4,201,774 to Igarashi et al (hereinafter Igarashi et al).

Claims 79 and 102 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Hanes et al in view of Unger and as evidence by Mori et al, and further in view of U.S. Patent 5,006,343 to Benson et al (hereinafter Benson et al).

Claims 57, 59-77, 80 and 82-100 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Hanes et al in view of U.S. Patent 6,248,720 to Mathiowitz et al (hereinafter Mathiowitz et al) or U.S. Patent 5,149,543 to Cohen et al (hereinafter Cohen et al), as evidenced by Mori et al.

Claims 57, 59-77, 80 and 82-100 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Hanes et al in view of a 1975 journal article to Papahadjopoulos et al (hereinafter Papahadjopoulos et al), as evidenced by Mori et al.

Claims 78 and 101 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Hanes et al in view of Mathiowitz et al or Cohen et al or Papahadjopoulos et al, as evidenced by Mori et al, and further in view of Igarashi et al.

Claims 79 and 102 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Hanes et al in view of Mathiowitz et al or Cohen et al or Papahadjopoulos et al, as evidenced by Mori et al, and further in view of Benson et al.

Claims 57, 59-80 and 82-102 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 8, 9, 11-15, 17, 19-25, 29-32, 53-55, 57-62 and 64-89 of U.S. Patent Application No. 09/851,226.

Claims 57, 59-80 and 82-102 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6, 7, 9, 10, 46-50, 54-57, 59, 61-67, 69, 70, 74-77 and 79-90 of U.S. Patent Application No. 09/568,818.

Claims 57, 59-80 and 82-102 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15, 19-22, 37-49, 52-64, 67-79, 82, 83, 94 and 102 of U.S. Patent Application No. 10/750,934.

(7) *Argument*

Appellant believes each of claims 57, 59-80 and 82-102 are improperly rejected and are therefore allowable for the following reasons.

Claim rejections under 35 U.S.C. §112, second paragraph are improper

The Examiner's rejection of claims 57, 59-80 and 82-102 under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention is improper and should be reversed.

The Examiner contends the expression "greater than about 50% phospholipid" is indefinite but fails to support this contention. The objected to language is not, *per se*, indefinite, and the Examiner offers no reasoning as to why the language is indefinite in the present case.

In determining the range encompassed by the term "about", one must consider the context of the term as it is used in the specification and claims of the application. Ortho-McNeil Pharm., Inc. v. Caraco Pharm. Labs., Ltd., 476 F.3d 1321, 1326, (Fed. Cir. 2007). In W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, (Fed. Cir. 1983), the court held that a limitation defining the stretch rate of a plastic as "exceeding about 10% per second" is definite since range of "about" was clear from the context. In the present context, the range of "about" would be clear to one of ordinary skill in the art from the context of the specification. Since the range of "about" is clear, it follows that the range of "greater than about" is also clear since it includes everything that is "about 50%" and everything that is greater than that.

That the expression "greater than about" is not, *per se*, indefinite is further evidenced by its extensive usage in patents issued in the United States. A word search of U.S. Patents that issued in 2009 reveals that no fewer than 1257 patents include the expression "greater than about" in their claims (see EXHIBIT A in Evidence Appendix). This result does not even include similar expressions, such as "less than about" or "at least about" and does not include patents issued before 2009.

The Examiner has therefore failed to establish that the claim expression in the present case is indefinite. The expression is sufficiently clear to one of ordinary skill in the art. Accordingly, Appellant requests reversal of the rejection.

The claims are improperly rejected under 35 U.S.C. §103(a)

35 USC 103(a) rejections based on Hanes et al, Unger and Mori et al

The Examiner's rejection of independent claim 57 under 35 USC §103(a) as being unpatentable over Hanes et al in view of Unger as evidenced by Mori et al is improper and should be reversed.

Hanes et al, Unger and Mori et al do not render independent claim 57 unpatentable. Claim 57 is to an inhaleable powder composition comprising a plurality of particulate microstructures, the particulate microstructures comprising, *inter alia*, a structural matrix comprising phospholipid and calcium, wherein the particulate microstructures comprise greater than about 50% phospholipid. Hanes et al does not teach an inhaleable powder as claimed, and Unger and Mori et al fail to make up for the deficiencies of Hanes et al, as will be explained.

First, Hanes et al does not disclose or suggest a particulate microstructure comprising greater than about 50% phospholipid. Instead, Hanes et al discloses two different versions of particles. The first version is directed to particles that are primarily composed of polymer (see abstract lines 7-10 and columns 5 and 6). While this version may include small amounts of surfactant, nowhere is it disclosed that greater than about 50% of the particle is phospholipid. In all of the exemplified versions, the bulk of the particle is polymer. Thus, the particulate microstructures of claim 57 are not disclosed in the first version of Hanes et al particles.

Though not exemplified, in another version, Hanes et al mentions that the particles "may be formed solely of the drug or diagnostic agent and a surfactant." However, these particles also fail to meet the claim language. Appellant's claim 57 requires calcium in addition to phospholipid. Therefore, Hanes et al particles that are made up ***solely*** of drug and surfactant would not render the particles of claim 57 unpatentable.

The comments made by the Examiner in the Final Rejection of June 22, 2010 do not serve to show that Hanes et al discloses or teaches particles that are greater than about 50% phospholipid. In addressing this limitation, the Examiner points Appellant to Table 4 in column 18 of Hanes et al. However, the Examiner has mischaracterized the teachings in the Table. The 62.8 and 89.1 referred to by the Examiner are not weight percents, but are DPPC loads in µg/mg spheres. Thus, these values are far from being greater than about 50%. The Examiner also addresses the second version of Hanes et

al particles and somehow reaches the conclusion that the term "solely" means "without polymer." The basis for this conclusion is not provided.

The teachings of Unger and Mori et al do not make up for the deficiencies of Hanes et al. Unger and Mori et al are not relied upon to teach particles that are greater than about 50% phospholipid, nor do they. Accordingly, any combination of the references fails to teach this positively recited limitation.

Furthermore, claim 57 recites the presence of phospholipid and calcium, and one of ordinary skill in the art would not have been motivated to combine Hanes et al and Unger in a manner that would arrive at the invention of claim 57. Hanes et al teaches primarily polymeric particles, as discussed above. Unger is relied upon to teach the desirability of adding calcium. Therefore, even if one were to combine the teachings of Unger with the primarily polymeric particles of Hanes et al, one would not arrive at particles that are greater than 50% phospholipid. Concerning the second version of particles disclosed by Hanes et al, *i.e.,* particles that are solely surfactant and drug, one of ordinary skill in the art would not have combined the teachings as proposed by the Examiner. First, Hanes et al teaches away for additional components by its use of "solely." Secondly, if there is no polymer in the particle, calcium-polymer interactions discussed by Unger would not apply. Accordingly, Unger is not properly combinable with either particle version taught by Hanes et al in a manner where one of ordinary skill in the art would arrive at Appellant's invention as set forth in claim 57.

Mori et al is not relied upon to make up for the deficiencies of Hanes et al and Unger, nor does it.

In sum, Hanes et al does not disclose particles that are greater than about 50% phospholipid and that include calcium. Hanes et al discloses particles that are either: (i) primarily polymer with a small amount of surfactant, or (ii) entirely surfactant and drug. The Examiner's position that Hanes et al discloses particles that are greater than about 50% phospholipid is based on an incorrect interpretation of the data in Table 4 and by

ignoring the term "solely" used by Hanes et al.

For at least these reasons, claim 57 is not properly rejectable under 35 USC §103(a) as being unpatentable over Hanes et al, Unger and Mori et al. The modification proposed by the Examiner is not one that would have been well within the grasp of one of ordinary skill in the art at the time the invention was made. In this regard, the Examiner has failed to establish that the teachings of Unger could be applied, with a reasonable likelihood of success, to Hanes et al. There is no evidence to suggest that this is a situation where the ordinary artisan could have combined in the teachings in a manner that would result in the invention of claim 57, and there is no evidence to suggest the artisan would have seen the benefit in doing so. Furthermore, Appellant has unexpectedly found that invention set forth in claim 57 is particularly useful for delivering an active agent to the lungs in a reproducible manner. Thus, claim 57 is allowable over the references cited.

Appellant requests reversal of the rejection of claim 57 under 35 U.S.C. §103(a). In addition, Appellant requests reversal of the rejection of claims 59-79 which depend from claim 57 and are not rendered unpatentable by Hanes et al, Unger and Mori et al for at least the same reasons as claim 57.

Hanes et al, Unger and Mori et al also do not render independent claim 80 unpatentable. Claim 80 is to a composition comprising a plurality of particulate microstructures, the particulate microstructures comprising, *inter alia*, a structural matrix comprising phospholipid and calcium, wherein the particulate microstructures comprise greater than about 50% phospholipid. Hanes et al does not teach particulate microstructures that comprise greater than about 50% phospholipid and calcium, as discussed above. Unger and Mori et al do not make up for the deficiencies of Hanes et al.

For at least these reasons, claim 80 is not properly rejectable under 35 USC §103(a) as being unpatentable over Hanes et al and Unger. The modification proposed

by the Examiner is not one that would have been well within the grasp of one of ordinary skill in the art at the time the invention was made. In this regard, the Examiner has failed to establish that the teachings of Unger could be applied, with a reasonable likelihood of success, to Hanes et al. There is no evidence to suggest that this is a situation where the ordinary artisan could have combined in the teachings in a manner that would result in the invention of claim 80, and there is no evidence to suggest the artisan would have seen the benefit in doing so. Furthermore, Appellant has unexpectedly found that invention set forth in claim 80 is particularly useful for delivering an active agent to the lungs in a reproducible manner. Thus, claim 80 is allowable over the references cited.

Appellant requests reversal of the rejection of claim 80 under 35 U.S.C. §103(a). In addition, Appellant requests reversal of the rejection of claims 82-102 which depend from claim 80 and are not rendered unpatentable by Hanes et al and Unger for at least the same reasons as claim 80.

The Examiner's rejection of claims 78 and 101 under 35 USC §103(a) as being unpatentable over Hanes et al in view of Unger and Mori et al, and further in view of Igarashi et al, is also improper and should be reversed.

Claims 78 and 101 depend from claims 57 and 80, respectively. Hanes et al, Unger and Mori et al do not render claims 57 and 80 unpatentable, as discussed above. Igarashi et al, which is relied on by the Examiner to teach the use of antibiotics as an active agent, does not make up for the deficiencies of Hanes et al, Unger and Mori et al with regard to claims 57 and 80. Thus, claims 78 and 101 are allowable for at least the reason that they depend from allowable claims.

The Examiner's rejection of claims 79 and 102 under 35 USC §103(a) as being unpatentable over Hanes et al, Unger and Mori et al, and further in view of U.S. Patent Benson et al, is also improper and should be reversed.

Claims 79 and 102 depend from claims 57 and 80, respectively. Hanes et al, Unger and Mori et al do not render claims 57 and 80 unpatentable, as discussed above. Benson et al, which is relied on by the Examiner to teach the use of fungicides as an active agent, does not make up for the deficiencies of Hanes et al and Unger with regard to claims 57 and 80. Thus, claims 79 and 102 are allowable for at least the reason that they depend from allowable claims.

35 USC 103(a) rejections based on Hanes et al, Mathiowitz et al, Cohen et al and Mori et al

The Examiner's rejection of independent claim 57 under 35 USC §103(a) as being unpatentable over Hanes et al in view of Mathiowitz et al or Cohen et al, as evidenced by Mori et al, is improper and should be reversed.

Hanes et al, Mathiowitz et al or Cohen et al and Mori et al do not render independent claim 57 unpatentable. Claim 57 is to an inhaleable powder composition comprising a plurality of particulate microstructures, the particulate microstructures comprising, *inter alia*, a structural matrix comprising phospholipid and calcium, wherein the particulate microstructures comprise greater than about 50% phospholipid. Hanes et al does not teach an inhaleable powder as claimed, and Mathiowitz et al or Cohen et al and Mori et al fail to make up for the deficiencies of Hanes et al, as will be explained.

As discussed above, Hanes et al does not disclose or suggest a particulate microstructure comprising greater than about 50% phospholipid. Instead, Hanes et al discloses particles that are either primarily polymeric or that are solely surfactant and drug. The teachings of Mathiowitz et al or Cohen et al and Mori et al do not make up for the deficiencies of Hanes et al. Mathiowitz et al or Cohen et al and Mori et al are not relied upon to teach particles that are greater than about 50% phospholipid, nor do they. Accordingly, any combination of the references fails to teach this positively recited limitation.

Furthermore, claim 57 recites the presence of phospholipid and calcium, and one of ordinary skill in the art would not have been motivated to combine Hanes et al and Mathiowitz et al or Cohen et al in a manner that would arrive at the invention of claim 57. Hanes et al teaches primarily polymeric particles, as discussed above. Mathiowitz et al or Cohen et al is relied upon to teach the desirability of adding calcium. Therefore, even if one were to combine the teachings of Mathiowitz et al or Cohen et al with the primarily polymeric particles of Hanes et al, one would not arrive at particles that are greater than 50% phospholipid. Concerning the second version of particles disclosed by Hanes et al, *i.e.*, particles that are solely surfactant and drug, one of ordinary skill in the art would not have combined the teachings as proposed by the Examiner. First, Hanes et al teaches away for additional components by its use of "solely." Secondly, if there is no polymer in the particle, calcium-polymer interactions discussed by Mathiowitz et al or Cohen et al would not apply. Accordingly, Mathiowitz et al or Cohen et al is not properly combinable with either particle version taught by Hanes et al in a manner where one of ordinary skill in the art would arrive at Appellant's invention as set forth in claim 57.

Mori et al is not relied upon to make up for the deficiencies of Hanes et al and Mathiowitz et al or Cohen et al, nor does it.

For at least these reasons, claim 57 is not properly rejectable under 35 USC §103(a) as being unpatentable over Hanes et al, Mathiowitz et al or Cohen et al and Mori et al. The modification proposed by the Examiner is not one that would have been well within the grasp of one of ordinary skill in the art at the time the invention was made. In this regard, the Examiner has failed to establish that the teachings of Unger could be applied, with a reasonable likelihood of success, to Hanes et al. There is no evidence to suggest that this is a situation where the ordinary artisan could have combined in the teachings in a manner that would result in the invention of claim 57, and there is no evidence to suggest the artisan would have seen the benefit in doing so. Furthermore, Appellant has unexpectedly found that invention set forth in claim 57 is particularly useful for delivering an active agent to the lungs in a reproducible manner.

Thus, claim 57 is allowable over the references cited.

Appellant requests reversal of the rejection of claim 57 under 35 U.S.C. §103(a). In addition, Appellant requests reversal of the rejection of claims 59-79 which depend from claim 57 and are not rendered unpatentable by Hanes et al, Mathiowitz et al or Cohen et al and Mori et al for at least the same reasons as claim 57.

Hanes et al, Mathiowitz et al or Cohen et al and Mori et al also do not render independent claim 80 unpatentable. Claim 80 is to a composition comprising a plurality of particulate microstructures, the particulate microstructures comprising, *inter alia*, a structural matrix comprising phospholipid and calcium, wherein the particulate microstructures comprise greater than about 50% phospholipid. Hanes et al does not teach particulate microstructures that comprise greater than about 50% phospholipid and calcium, as discussed above. Mathiowitz et al or Cohen et al and Mori et al do not make up for the deficiencies of Hanes et al.

For at least these reasons, claim 80 is not properly rejectable under 35 USC §103(a) as being unpatentable over Hanes et al and Mathiowitz et al or Cohen et al. The modification proposed by the Examiner is not one that would have been well within the grasp of one of ordinary skill in the art at the time the invention was made. In this regard, the Examiner has failed to establish that the teachings of Unger could be applied, with a reasonable likelihood of success, to Hanes et al. There is no evidence to suggest that this is a situation where the ordinary artisan could have combined in the teachings in a manner that would result in the invention of claim 80, and there is no evidence to suggest the artisan would have seen the benefit in doing so. Furthermore, Appellant has unexpectedly found that invention set forth in claim 80 is particularly useful for delivering an active agent to the lungs in a reproducible manner. Thus, claim 80 is allowable over the references cited.

Appellant requests reversal of the rejection of claim 80 under 35 U.S.C. §103(a). In addition, Appellant requests reversal of the rejection of claims 82-102 which depend

from claim 80 and are not rendered unpatentable by Hanes et al and Mathiowitz et al or Cohen et al for at least the same reasons as claim 80.

35 USC 103(a) rejections based on Hanes et al, Papahadjopoulos and Mori et al

The Examiner's rejection of independent claim 57 under 35 USC §103(a) as being unpatentable over Hanes et al in view of Papahadjopoulos et al, as evidenced by Mori et al is improper and should be reversed.

Hanes et al, Papahadjopoulos et al and Mori et al do not render independent claim 57 unpatentable. Claim 57 is to an inhaleable powder composition comprising a plurality of particulate microstructures, the particulate microstructures comprising, *inter alia*, a structural matrix comprising phospholipid and calcium, wherein the particulate microstructures comprise greater than about 50% phospholipid. Hanes et al does not teach an inhaleable powder as claimed, and Papahadjopoulos et al and Mori et al fail to make up for the deficiencies of Hanes et al, as will be explained.

As discussed above, Hanes et al does not disclose or suggest a particulate microstructure comprising greater than about 50% phospholipid. Instead, Hanes et al discloses particles that are either primarily polymeric or that are solely surfactant and drug. The teachings of Papahadjopoulos et al and Mori et al do not make up for the deficiencies of Hanes et al. Papahadjopoulos et al and Mori et al are not relied upon to teach particles that are greater than about 50% phospholipid, nor do they. Accordingly, any combination of the references fails to teach this positively recited limitation.

Furthermore, claim 57 recites the presence of phospholipid and calcium, and one of ordinary skill in the art would not have been motivated to combine Hanes et al and Papahadjopoulos et al in a manner that would arrive at the invention of claim 57. Hanes et al teaches primarily polymeric particles, as discussed above. Papahadjopoulos et al is relied upon to teach the desirability of adding calcium. Therefore, even if one were to combine the teachings of Papahadjopoulos et al with the primarily polymeric particles of

Hanes et al, one would not arrive at particles that are greater than 50% phospholipid. Concerning the second version of particles disclosed by Hanes et al, *i.e.,* particles that are solely surfactant and drug, one of ordinary skill in the art would not have combined the teachings as proposed by the Examiner. First, Hanes et al teaches away for additional components by its use of "solely." Secondly, if there is no polymer in the particle, calcium-polymer interactions discussed by Papahadjopoulos et al would not apply. Accordingly, Papahadjopoulos et al is not properly combinable with either particle version taught by Hanes et al in a manner where one of ordinary skill in the art would arrive at Appellant's invention as set forth in claim 57.

Mori et al is not relied upon to make up for the deficiencies of Hanes et al and Papahadjopoulos et al, nor does it.

For at least these reasons, claim 57 is not properly rejectable under 35 USC §103(a) as being unpatentable over Hanes et al, Papahadjopoulos et al and Mori et al. The modification proposed by the Examiner is not one that would have been well within the grasp of one of ordinary skill in the art at the time the invention was made. In this regard, the Examiner has failed to establish that the teachings of Unger could be applied, with a reasonable likelihood of success, to Hanes et al. There is no evidence to suggest that this is a situation where the ordinary artisan could have combined in the teachings in a manner that would result in the invention of claim 57, and there is no evidence to suggest the artisan would have seen the benefit in doing so. Furthermore, Appellant has unexpectedly found that invention set forth in claim 57 is particularly useful for delivering an active agent to the lungs in a reproducible manner. Thus, claim 57 is allowable over the references cited.

Appellant requests reversal of the rejection of claim 57 under 35 U.S.C. §103(a). In addition, Appellant requests reversal of the rejection of claims 59-79 which depend from claim 57 and are not rendered unpatentable by Hanes et al, Papahadjopoulos et al and Mori et al for at least the same reasons as claim 57.

Hanes et al, Papahadjopoulos et al and Mori et al also do not render independent claim 80 unpatentable. Claim 80 is to a composition comprising a plurality of particulate microstructures, the particulate microstructures comprising, *inter alia*, a structural matrix comprising phospholipid and calcium, wherein the particulate microstructures comprise greater than about 50% phospholipid. Hanes et al does not teach particulate microstructures that comprise greater than about 50% phospholipid and calcium, as discussed above. Papahadjopoulos et al and Mori et al do not make up for the deficiencies of Hanes et al.

For at least these reasons, claim 80 is not properly rejectable under 35 USC §103(a) as being unpatentable over Hanes et al and Papahadjopoulos et al. The modification proposed by the Examiner is not one that would have been well within the grasp of one of ordinary skill in the art at the time the invention was made. In this regard, the Examiner has failed to establish that the teachings of Unger could be applied, with a reasonable likelihood of success, to Hanes et al. There is no evidence to suggest that this is a situation where the ordinary artisan could have combined in the teachings in a manner that would result in the invention of claim 80, and there is no evidence to suggest the artisan would have seen the benefit in doing so. Furthermore, Appellant has unexpectedly found that invention set forth in claim 80 is particularly useful for delivering an active agent to the lungs in a reproducible manner. Thus, claim 80 is allowable over the references cited.

Appellant requests reversal of the rejection of claim 80 under 35 U.S.C. §103(a). In addition, Appellant requests reversal of the rejection of claims 82-102 which depend from claim 80 and are not rendered unpatentable by Hanes et al and Papahadjopoulos et al for at least the same reasons as claim 80.

35 USC 103(a) rejections based on Hanes et al, Mathiowitz et al or Cohen et al or Papahadjopoulos, and Mori et al

The Examiner's rejection of claims 78 and 101 under 35 USC §103(a) as being unpatentable over Hanes et al in view of Mathiowitz et al or Cohen et al or Papahadjopoulos et al, as evidenced by Mori et al and further in view of Igarashi et al, is improper and should be reversed.

Claims 78 and 101 depend from claims 57 and 80, respectively. Hanes et al and Mathiowitz et al, Cohen et al, Papahadjopoulos et al and Mori et al do not render claims 57 and 80 unpatentable, as discussed above. Igarashi et al, which is relied on by the Examiner to teach the use of antibiotics as an active agent, does not make up for the deficiencies of the other references with regard to claims 57 and 80. Thus, claims 78 and 101 are allowable for at least the reason that they depend from allowable claims.

The double patenting rejections

The Examiner provisionally rejected claims 57, 59-80 and 82-102 under the judicially created doctrine of double patenting as being unpatentable over the claims of U.S. Patent Applications 09/851,226; 09/568,818; 10/750,934; and 10/982,191.

Appellant will file terminal disclaimers as appropriate upon the indication of otherwise allowable claims.

Conclusion

Thus, it is believed that all rejections made by the Examiner have been addressed and overcome by the above arguments. Therefore, all pending claims are allowable. A reversal is respectfully requested.

Should there be any questions, Appellant's representative may be reached at the number listed below.

Respectfully submitted,

JANAH & ASSOCIATES

Dated: January 22, 2010

By: _____
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(8) Claims Appendix

57. An inhaleable powder composition comprising a plurality of particulate microstructures, the particulate microstructures comprising:

(a) a structural matrix comprising phospholipid and calcium, wherein the particulate microstructures comprise greater than about 50% phospholipid;

(b) an active agent;

(c) a mean geometric diameter of 1-30 microns;

(d) a mean aerodynamic diameter of less than 5 microns; and

(e) a bulk density of less than about 0.5 g/cm^3.

59. The composition of claim 57 wherein the particulate microstructures are porous and have a mean porosity of 0.5 - 80%.

60. The composition of claim 59 wherein the particulate microstructures have a mean porosity of 2 - 40%.

61. The composition of claim 60 wherein the particulate microstructures have a mean pore size of 20 – 200 nm.

62. The composition of claim 57 wherein the fine particle fraction of the particulate microstructures in the composition is greater than 20% w/w.

63. The composition of claim 62 wherein the fine particle fraction of the particulate microstructures in the composition is from about 30% to 70% w/w.

64. The composition of claim 57 wherein the particulate microstructures comprise a bulk density of less than 0.1 g/cm^3.

65. The composition of claim 64 wherein the particulate microstructures comprise a bulk density of less than 0.05 g/cm^3.

66. The composition of claim 57 wherein the particulate microstructures comprise perforated microstructures.

67. The composition of claim 57 wherein said particulate microstructures comprise hollow microspheres.

68. The composition of claim 57 wherein the particulate microspheres comprise a shell with a thickness of 0.1 - 0.5 μm.

69. The composition of claim 57 wherein the particulate microstructures comprise a mean aerodynamic diameter of between 0.5 μm and 5 μm.

70. The composition of claim 57 wherein the particulate microstructures comprise a mean geometric diameter of less than 10 microns.

71. The composition of claim 70 wherein the particulate microstructures comprise mean geometric diameter is less than 5 microns.

72. The composition of claim 57 wherein the phospholipid comprises a gel to liquid crystal transition temperature of greater than 40° C.

73. The composition of claim 57 wherein the phospholipid comprises a zwitterionic phospholipid.

74. The composition of claim 57 wherein the phospholipid comprises at least one of dilauroylphosphatidylcholine, dioleoylphosphatidylcholine, dipalmitoylphosphatidylcholine, disteroylphosphatidylcholine dibehenoylphosphatidylcholine, diarachidoylphosphatidylcholine and combinations thereof.

75. The composition of claim 57 wherein the active agent is a bioactive agent.

76. The composition of claim 75 wherein the bioactive agent comprises at least one of antiallergics, bronchodilators, pulmonary lung surfactants, analgesics, antibiotics, antiinfectives, leukotriene inhibitors or antagonists, antihistamines, antiinflammatories, antineoplastics, anticholinergics, anesthetics. anti-tuberculars, antivirals, fungicides, immunoactive agents, vaccines, immunosuppressive agents, imaging agents, cardiovascular agents, enzymes, steroids, DNA, RNA, viral vectors, antisense agents, proteins, peptides and combinations thereof.

77. The composition of claim 75 wherein the bioactive agent comprises at least one of fentanyl, morphine, lung surfactant, leuprolide, interferon, insulin, budesonide, formoterol, goserelin, and growth hormones.

78. The composition of claim 75 wherein the bioactive agent is an aminoglycoside antibiotic.

79. The composition of claim 75 wherein the bioactive agent is a fungicide.

80. A composition comprising a plurality of particulate microstructures, the particulate microstructures comprising:

(a) a structural matrix comprising phospholipid and calcium, the phospholipid comprising a gel to liquid crystal transition temperature of greater than 40°C, wherein greater than about 50% of the particulate microstructures comprise phospholipid;

(b) an active agent;

(c) a mean geometric diameter of 1-30 microns;

(d) a mean aerodynamic diameter of less than 5 microns; and

(e) a bulk density of less than about 0.5 g/cm^3.

82. The composition of claim 80 wherein the particulate microstructures are porous and have a mean porosity of 0.5 - 80%.

83. The composition of claim 82 wherein the particulate microstructures have a mean porosity of 2 - 40%.

84. The composition of claim 82 wherein the particulate microstructures have a mean pore size of 20 – 200 nm.

85. The composition of claim 80 wherein the fine particle fraction of the particulate microstructures in the composition is greater than 20% w/w.

86. The composition of claim 85 wherein the fine particle fraction of the particulate microstructures in the composition is from about 30% to 70% w/w.

87. The composition of claim 80 wherein the particulate microstructures comprise a bulk density of less than 0.1 g/cm^3.

88. The composition of claim 87 wherein the particulate microstructures comprise a bulk density of less than 0.05 g/cm^3.

89. The composition of claim 80 wherein the particulate microstructures comprise perforated microstructures.

90. The composition of claim 80 wherein said particulate microstructures comprise hollow microspheres.

91. The composition of claim 80 wherein the particulate microspheres comprise a shell with a thickness of 0.1 - 0.5 μm.

92. The composition of claim 80 wherein the particulate microstructures comprise a mean aerodynamic diameter of between 0.5 μm and 5 μm.

93. The composition of claim 80 wherein the particulate microstructures comprise a mean geometric diameter of less than 10 microns.

94. The composition of claim 93 wherein the particulate microstructures comprise mean geometric diameter is less than 5 microns.

95. The composition of claim 80 wherein the phospholipid comprises a gel to liquid crystal transition temperature of greater than 40° C.

96. The composition of claim 80 wherein the phospholipid comprises a zwitterionic phospholipid.

97. The composition of claim 80 wherein the phospholipid comprises at least one of dilauroylphosphatidylcholine, dioleoylphosphatidylcholine, dipalmitoylphosphatidylcholine, disteroylphosphatidylcholine dibehenoylphosphatidylcholine, diarachidoylphosphatidylcholine and combinations thereof.

98. The composition of claim 80 wherein the active agent is a bioactive agent.

99. The composition of claim 98 wherein the bioactive agent comprises at least one of antiallergics, bronchodilators, pulmonary lung surfactants, analgesics, antibiotics, antiinfectives, leukotriene inhibitors or antagonists, antihistamines, antiinflammatories, antineoplastics, anticholinergics, anesthetics. anti-tuberculars, antivirals, fungicides, immunoactive agents, vaccines, immunosuppressive agents, imaging agents, cardiovascular agents, enzymes, steroids, DNA, RNA, viral vectors, antisense agents, proteins, peptides and combinations thereof.

100. The composition of claim 98 wherein the bioactive agent comprises at least one of fentanyl, morphine, lung surfactant, leuprolide, interferon, insulin, budesonide, formoterol, goserelin, and growth hormones.

101. The composition of claim 98 wherein the bioactive agent is an aminoglycoside antibiotic.

102. The composition of claim 98 wherein the bioactive agent is a fungicide.

(9) Evidence Appendix

EXHIBIT A

Online Delphion search conducted on January 22, 2010 by Guy Tucker:

Terms searched: "greater than about" in claims
Items searched: US Patents granted between January 1, 2009 and January 1, 2010

Matches found: 1257

Examples:
7,524,399
7,507,687
7,614,506

(10) Related Proceedings Appendix

none